THE

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OF THE

FEDERATED MALAY STATES.

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STRENGTH OR COLOUR STANDARDS.

The present moment is of particular interest to producers who have sold forward plantation rubber, not so much on account of the fact that they have lost on the bargain, but that they are being compelled to buy in against rejected consignments. It would appear that by "first quality latex" is meant, not rubber of first quality from point of strength and general physical characteristics, but material which is of a certain colour. The reason for this confusion lies in the process of doing business, and not because the actual manufacturers desire all or even the greater part of their rubber in the pale form. We have been in communication with numerous manufacturers and brokers on the subject, and in deference to their wishes, do not propose to deal with their views at the present moment. But we must, at this juncture, impress upon all dealers that the sooner the colour basis is broadened the better for all business in futures. If rubber is to be rejected, not because it is not good and of real first-class quality, but because it is not pale enough, we feel sure from our own knowledge of the methods now being adopted that trouble will ensue.

The object of the present contribution is forcibly to remind producers that they should, for the future, aim at marketing rubber which is uniform, and of the best strength. Colour alone is no criterion of actual value, in fact it might well be that a good proportion of the rubber now passing as "first quality latex" is vastly inferior to darker kinds which are rejected by the dealers responsible for forward contracts. While this unsound basis is adhered to, planters will take care that rubber, irrespective of its real quality, is sent in the pale form, now that the use of sodium bisulphite is known to be effective in that respect. But we hasten to inform all producers that certain manufacturers have already told us that if they detect the mineral referred to in any estate's produce they will not buy any more from the same plantation. No doubt planters will

do their utmost to remove all traces of this bleaching reagent by thorough washing before shipping their produce. The experiment does, however, judging from the comments made by manufacturers, seem to be of a dangerous type. Hence our recommendation is to aim at producing rubber of the best quality ; not necessarily of the finest pale colour.

Many opportunities have been afforded to determine which is the best rubber, and those planters who, wisely enough, have pressed for the views and advice of manufactures, should certainly consider what advice the latter have already proffered. It is therefore opportune to recall what experts and users have already told us. The India Rubber Journal Shield, offered last year for the best plantation rubber in the world, was won, not by pale or chemically treated material, but by smoked rubber. Grenier's Trophy was similarly awarded to the smoked product. These competitions were not watched from idle curiosity, but from the practical standpoint. Both prizes, keenly competed for, were won by one exhibitor of smoked rubber. Furthermore, the exhibits nearest the winning lots were all smoked. Surely the value of this verdict was great enough to justify every planter in taking it into very serious consideration.

It must be remembered that the verdict was given, in each case, as the result of minute examination not by dealers, but by manufacturers, technologists, and brokers of the highest possible standing. The methods of the two groups of judges were quite unknown to each other, and their decisions, strengthened by the fact that the runners-up exhibited smoked rubber, should be regarded as a definite pronouncement in favour of smoked as against the unsmoked plantation product.

Present and past prices for various forms of plantation rubber are no criterion of value ; the premium on pale rubber to-day is on account of the shortage of supply and the fact that dealers continue to adhere to it as their standard. We cannot understand why our brokers do not advise planters to prepare rubber in the manner asked for by manufacturers.—*The India Rubber Journal, August 3, 1912.*

BULLETIN OF THE IMPERIAL INSTITUTE.

This Bulletin was first published in 1903.

It appears quarterly and contains :—reports on investigations conducted in the Scientific and Technical Department of the Imperial Institute ; articles and notes dealing with mineral and vegetable economic products ; and a quarterly summary of information on recent progress in agriculture and the development of natural resources.

Until this year, the "Bulletin" has been published by the Imperial Institute, but owing to the increasd demand for it, its publication has now been undertaken by Mr. John Murray, 50a, Albemarle Street, London W., and the first number of the new series has appeared.

The principal contents of this first number are as follows:—

Rubber resources of Uganda; some cotton soils of the Nyasaland and Uganda Protectorates; Kola nuts from British West Africa; Coca leaves from Ceylon and the Federated Malay States; Aromatic grass oils, Part III; Hibiscus fibres from the Northern Territories, Gold Coast; Timbers from Uganda; Sumach from Cyprus; Economic products from Mauritius; The coconut and its commercial uses, Part I; Cultivation preparation and utilisation of hemp and hemp seed (*Cannabis sativa*); Cultivation and preparation of ginger; Agricultural work in Seychelles; Candelilla wax; Sisal hemp in Quilimane; New Zealand hemp; Iron ore from Trinidad; Copper-mercury ore from Queensland; Native labour regulations in Mozambique.

The second number, now in the press, will have the following principal contents:

Tobacco industry of Ceylon; some new gutta-yielding plants from the Gold Coast; *Ficus elastica* rubber from Southern Nigeria; "Balata" rubber (*Ficus Vogelii*) from Southern Nigeria; The rubber of *Cryptostegia grandiflora*; Silk from India; Cotton and Sisal hemp from Papua (British New Guinea); Fibres from India; Utilisation of *Caesalpinia digyna;* Oil-seeds of *Telfairia pedata*; *Lophira* oil-seeds from West Africa; Oils and oil-seeds from Hong Kong; West African cocoa; The cultivation of cigar tobacco with special reference to Java; The coconut and its commercial uses, Part II; Shea nuts and Shea butter; Rubber tapping experiments in Southern Nigeria; Economic developments in the Belgian Congo; West Indian satinwood; Oil of "Nepal Camphor wood;" Citronella grass; *Mesembrianthemum Mahoni* roots from the Transvaal; Rubber Exhibition in Java; Cultivation of fibres in Java; "Root cotton;" Perilla seed and oil.

The annual subscription to the "Bulletin" is 10s. 6d., or 11s. post free; single numbers may be purchased at 2s. 6d. each or 2s. 9d. post free. Subscriptions may be paid through any bookseller, or if no bookseller is available they may be sent direct to Mr. John Murray, 50a, Albemarle Street, London. W.

ASPARAGUS.

The following article on the cultivation of Asparagus appeared in Bulletin No. 14 of the Department of Land Records and Agriculture, Assam by R. L. Proudlock, Arboricultural Expert, Eastern

Bengal and Assam and may be of interest to those in this country who may desire to give the growing of Asparagus a trial.

Asparagus is a vegetable which is much esteemed by Europeans and can also be used in Indian dishes such as curry. The plant is cultivated for the sake of its tender young shoots, which have an agreeable flavour after they have been boiled.

2. At the Government Experimental Farm, Shillong, Asparagus has for many years been grown successfully, and the produce has been disposed of locally without any difficulty. Its cultivation, however, has not yet been taken up to any great extent by the Khasis who grow vegetables for the Shillong market.

3. The soil for Asparagus should be deep, fertile, open, well-drained, cool, moist and unshaded. As the beds are intended to, and will, last for many years (at least ten), it is essential that the ground should be trenched to a depth of fully 2½ feet and heavily manured. The manure should be throughly mixed with the soil. Plenty of decayed leaves, sand and old lime rubbish or ashes should also be added in order that a rich and thoroughly open soil may be prepared.

4. It is best to grow this crop in beds, which may be made five feet wide with two feet paths between them. To ensure good surface drainage it is advisable to raise the beds a little with soil taken from the paths between them.

5. The plant is usually raised from seed, which is ordinarily produced in abundance. The seed should be sown in prepared beds or in boxes, and when the seedlings are from five to eight inches high, they may be planted in permanent beds.

6. It is recommended that the young plants should be planted 18 inches by 18 inches apart, in three rows in each bed, i.e., the rows should be 18 inches apart and the plants in each row should also be 18 inches apart. Thus, the outer line of plants will be 1 foot from the edge of the bed and four feet distant from the first or nearest line of plants in the adjoining bed. Good, wide holes should be made in the prepared beds. In the centre of each hole a little mound or hillock of soil should be made. Each plant should be set on, and have its roots separated evenly round, one of these little mounds. The hole may then be filled up so that the plant will eventually be covered with about 3 inches of soil.

7. In order to increase and to conserve the strength of the plants it is advisable not to cut any shoots from them during the first two years after they are planted. In the third year (provided they have received proper treatment) the plants will yield a fair crop of Asparagus shoots; and each succeeding year, for several years afterwards, the produce will steadily increase. Care should always be taken to regulate the cutting so that too many shoots may not be cut at any time; otherwise the plants will be weakened and will not yield so well afterwards.

8. The withered stalks, when quite dead (but not before), should be removed every winter. The beds should then have some of the top soil carefully removed. Then a dressing of half decayed, strawy manure should be laid on the beds to the thickness of three inches and the soil should be replaced on the beds so that the manure may be covered. The above operations are to be repeated annually.

9. The beds should always be kept clean-weeded. The ground between the plants should never be allowed to get into a trodden or hardened condition. The beds should be lightly forked regularly, without disturbing the roots of the Asparagus, in order that the soil may always be kept in a loose and friable condition. During the growing season some strawy litter may be spread on the beds to help to increase the length of the blanched portion of the shoots.

10. In order to have tender, succulent, well blanched shoots, they should be cut as soon as they appear above ground. The loose earth around each shoot which it is intended to cut should be removed so that, approximately, the full length of the white or blanched portion of each shoot may be obtained.

The cutting should be done with a knife. The cut shoots may then be tied in bundles and their lower ends trimmed even with a knife. The bundles will then be ready for market.

SHRUBS WITH ORNAMENTAL FOLIAGE.

By J. Lambourne.

A garden in this country is not complete without a few plants with coloured or otherwise ornamental foliage, nor in any other country for that matter, but more especially is it the case in this country where the climatic conditions are more favourable to the rapid growth of foliage than to the production of flowers in any quantity. We have, it is true, a few plants which flower freely, but compared with some other countries we lack variety. Plants with ornamental foliage will therefore help to fill the place of flowering plants by adding colour where green would otherwise be predominant. Fortunately we have a good number of plants with beautifully coloured foliage which will grow quite easily in almost any position providing the soil and other conditions are favourable. If these are judiciously placed very pleasing results can be obtained.

In the following article I propose to mention a few of the more common shrubs with ornamental foliage, with a few hints on their uses and cultivation. I shall not deal with any very rare plants, but confine myself to those that are common and will grow fairly easily providing a reasonable amount of care is taken.

With regard to the cultural details, the instructions given for Flowering Shrubs in the August number of the *Agricultural Bulletin of the F.M.S.* Vol. I. No. I. will apply to these also, except perhaps as regards the pruning which should be done when necessary to keep the plants bushy. I shall give a few hints on pruning and also propagation as I proceed.

Acalypha :— This genus belongs to the Euphorbia family and contains several species and varieties of shrubs with highly coloured foliage. The colour varies with the different species as also do the shapes of the leaves. *A. Godsiffiana*, a native of New Guinea has green nettle shaped leaves with white margins while *A. macrophylla* has russet brown coloured leaves with paler spots. The latter is one of the best and handsomest of the Acalyphas.

A. Wilkesiana and its variety *marginata* are also handsome, the species having leaves of a coppery green colour curiously blotched with red and crimson, and the variety brown leaves with a distinct margin of rosy carmine.

A. obovata as its name implies has obovate leaves but in colour they are the same as *A. Wilkessiana* and *marginata*. *A. macrostachya* might also be mentioned as a very handsome plant; in shape of leaf it is very like *A. macrophylla* but slightly smaller and the blotches in the leaves are larger.

Acalyphas can be propagated quite easily from cuttings taken from the tops of the young shoots. These should be either struck in small pots or in nursery beds. If struck in small pots and grown on they make very handsome pot plants and also very useful ones, as they will do well in a sunny position where plants with more tender foliage will not thrive.

Pruning should consist in cutting back the shoots occasionally to induce the plants to branch.

Codiœum :— Codiaeums, or Crotons as they are more commonly called, also belong to the Euphorbia family. They are natives of Malaya which may perhaps account for their being so commonly grown here. Crotons of gardens are of many widely different forms. They are all derived however from one polymorphous natural group which J.Muller, the latest monographer, considers to be one species *Codiœum variegatum*. The codiaeums of horticulturists fall into three groups, e.g. those with ovate short stalked leaves, those with narrower and spathulated leaves and those with very narrow and often twisted leaves. These corespond with Muller's three natural divisions viz: *C. variegatum pictum*, *C. variegatum var. moluccanum*, *C. variegatum var. genuinum* respectively.

The garden varieties of crotons are I think popular with everyone both in tropical and temperate climates, where they are found in every garden where a sufficiently warm house can be afforded. The garden varieties are too numerous to mention but Queen

Victoria, Baron de Rothschild, Andreanum, Lady Zetland, Golden Ring, F. K. Sander and Evansianum are amongst the best.

These plants also require pruning to keep them bushy, the tops should therefore be cut off occasionally to make them branch. These tops may be propagated by placing them in small pots in sandy soil. They can then be grown on as pot plants and used for room decoration until too large for that purpose, when they may be planted out in beds or as isolated specimens on lawns,

Croton :—This genus is nearly allied to codiæum, commonly known as croton, but it should not be confused with that genus as the shrubs are quite different. It is from the seeds of one of the species of croton that croton oil is obtained. *Croton discolor* is a small shrub native of Dominica well worthy of a place in the garden on a account of its foliage. *C. candatus* (Tuku Takal) native of India and Java and *C. Griffithii* are also worthy of mention.

Eranthemum :—This is an extensive genus belonging to the natural order of Acanthaceae. The different species are widely distributed over both the Old and New Worlds. The species I shall mention here are more particularly valuable on account of their coloured foliage although some of them may also be placed among "flowering plants." *E. atropurpureum* a native of Polynesia has dark purple foliage and attractive flowers. *E. reticulatum* is also a very pretty plant, the leaves being green with veins picked out in yellow. *E. Tricolor* as its name implies has tricoloured foliage and is a very handsome plant especially when young. *E. variegatum* is a green leaved species with white markings. All these can be propagated quite easily from cuttings of the tops of young shoots. It is advisable to take the tops of the shoots off occasionally to induce them to branch. These plants flower terminally, so if flowers as well as foliage are required the tops should not be cut off until after flowering.

Graptophyllum hortense commonly known as "the caricature plant" is another Acanthaceous shrub native of Tropical Asia. It is well worthy of cultivation on account of its foliage which is curiously marked. The propagation and pruning should be done in the same way as advised for *Eranthemum.*

Leea amabilis, a native of Borneo, is a particularly handsome shrub having markings in the leaves, which are something like the English Elder in shape. There are several other species all natives of India, Burma, Malaya, etc., which are also attractive on account of their foliage and flowers, which latter are borne terminally in corymbs.

Erythrina : This genus belongs to the Natural Order Leguminosae and contain many species of shrubs and climbers with ornamental foliage and flowers. Two good species with attractive foliage are *E. Parceli* native of the South Sea Islands, with leaves having a

yellowish variegation, sometimes forming feather like stripes, and *E. marmorata*, native of Polynesia, with large leaves blotched with white.

Panax : A genus belonging to Araliaceæ contains several species of shrubs with ornamental foliage. *P. fruticosum* and its varieties Guilfoylie and Victoria are among the best. *P. cochleatum* and *P. crispum* may also be mentioned. These shrubs require pruning in the same way as codiaeums to make them branch and form bushy shrubs.

Sauchezia nobilis, an Acanthaceous shrub native of Ecuador, should find a place in every garden on account of its green leaves with yellowish markings along the veins, and also for its flowers. Young plants of this species may be grown from cuttings of young shoots.

Among other plants suitable for the garden on account of their foliage may be mentioned, *Sauropus albicans*, *Quassia amara*, several species of *Mussaenda* which have coloured bracts, *Grevillea robusta* which when kept small is an attractive shrub but when allowed to grow up makes a large tree. There are several others that may be mentioned but space will not allow to mention more now. These will suffice to furnish the largest garden with all the foliaged shrubs required to make an adequate variety of colour. If they are used with a reasonable amount of taste very pretty results can be obtained when used with palms and flowering plants.

YOUNG RUBBER; RESULTS OBTAINED IN SOME EXPERIMENTAL PLOTS AT KUALA LUMPUR.

By F. G. Spring.

The girth measurements of trees in three small plots at Kuala Lumpur have recently been taken at the end of 2 years and 8 months after planting and I propose to give a short account of the experiments.

The jungle was felled and burnt during February and March of 1907 and all timber removed from the land. At this time it was intended to reserve this area for an arboretum, the weeds were therefore allowed to grow and were cut periodically with the scythe until the end of 1909 when more land was urgently required for the cultivation of Rubber. In December 1909 the land referred to was changkolled but the weeds were not properly eradicated, in fact it was in a very bad condition, the lalang† being merely changkolled under without the roots being properly destroyed. The land was divided into three one-acre plots, adjacent to each other and under

†*Imperata arundinacea.*

similar conditions, the slope, drainage, and nature of the soil being practically the same in each case. Each plot was then planted with six months old stumps at a distance of $12\frac{1}{2} \times 25$ feet; the stumps being more or less of similar size. Plot (1) referred to in the table given below was changkolled every month to a depth of 2 to 3 inches. Plot (2) was changkolled once every three months to a depth of 6 to 7 inches. In plot (3) seed of Tephrosia purpurea was drilled in rows 3 feet apart in the beginning of January 1910. The Tephrosia was pruned on an average twice in a year, and the land weeded when the lalang grew to a height of 12 to 16 inches; this was only surface weeding. In August 1912 the girths of all the trees were taken at a distance of 1 foot from the base of the tree. The results obtained are as follows:—

No. of Plot	Treatment	No. of trees in plot	Date of planting	Date of girth measurement	Total girth of trees	Average girth of trees
1	Weeded once each month	107	December 1909	August 1912	985 inches	9.2 inches
2	Weeded once every three months	107	December 1909	August 1912	697 inches	6.5 inches
3	Tephrosia purpurea	107	December 1909	August 1912	628 inches	5.8 inches

It will be seen by referring to the table that the trees in the land weeded every month have an average girth of 9.2 inches while the girth of the trees in the plot weeded every three months have an average girth of 6.5 inches. Comparing those two plots, there are probably two factors which affected the growth of the trees:— (1) extent of cultivation and (2) the amount of weeds present in the respective plots. I am rather of opinion that the greater girth obtained in plot (1) is chiefly a question of cultivation. Each plot at the commencement of the experiment was similarly weedy and remained so until the girths were taken, the only difference being that the lalang in plot (1) being changkolled each month was not allowed to grow to the same height as it was in plot (2) but as the weeding in plot (1) was merely surface, this plot remained in an equally dirty condition, the lalang being kept under each time for a few days only.

The objects of cultivating a soil are:—to allow the air to enter the soil and thus promote oxidation, to allow vegetable and mineral matter to decompose more rapidly and supply plant food; to loosen the particles of a soil and mix them; to allow air and water easy access to roots and the soil; to promote the absorption of moisture and gases from the atmosphere; to encourage the growth of bacteria which help in the formation of nitrates; to check the growth of an-

aerobic bacteria which promote the liberation of free nitrogen from nitrates; to allow the roots to penetrate easily into the soil.

In plot (1) the soil was stirred to a very small depth but I think it had the effect of promoting many of the changes mentioned above and had the soil been changkolled monthly to the same depth as in plot (2) the difference in girth measurements would in all probability have been considerably greater. Although deep cultivation in the majority of soils is preferable to shallow, yet I think the latter extremely important in Malaya. I do not mean that deep cultivation would not give better results, but it is more expensive especially when done by hand and shallow stirring of the soil to a depth of 2 or 3 inches is sufficient to keep the surface layer free and in good tilth, a condition the climate does not tend to retain.

The climate may affect the soil to a small depth rendering it hard and inert, a state which I am rather of opinion does exist, in which case merely turning over the surface layer is promoting fertility.

NOTES ON INVESTIGATIONS OF PLANT DISEASES IN THE FEDERATED MALAY STATES, DURING 1911.

By Keith Bancroft.

(*Continued.*)

Coconut.

The diseases of the coconut palm during the year did not call for serious attention. The present work which is carried out by the Inspection Department on the improvement of the cultivation of the plant in this country and on removal of trees infected with disease is in the main no doubt responsible for the absence of disease of appreciable magnitude. A good standard of cultivation, a practice which appears to be somewhat lacking in several coconut-growing countries, can only lead to the growth of vigorous plants and hand in hand with this their better resistance to disease.

The maladies of the coconut palm which were recorded during the year numbered three.

Leaf Diseases.

i. *Pestalozzia Palmarum* is the cause of a spotting of the leaves of the plant. It is not uncommon to find trees whose leaves bear numerous spots first of a yellow colour, then with a grey centre bounded by a yellow or brown margin. Finally, the spots coalesce and the greater part of the leaf surface assumes a grey colour. On the spots can be seen minute black bodies which are

embedded in the tissues of the leaf; these are the fruiting bodies of the fungus.

I find that the fungus is most usually confined to the lowest leaves which are waning. In some few cases younger leaves have been affected; but invariably it has been found that when this occurs the trees are not thriving well, the cause of which can be traced to bad cultivation or drainage or to unsuitable situations such as high exposed ground.

Recently information was received from Sumatra that 70% of 20,000 young trees on one estate were dying and that the cause of the trouble was reported to be the above fungus. The plants were about one year old. An adjoining estate also showed a large number of spotted leaves on very young plants; but I understand that these latter have now much recovered. It would appear to be not unlikely that these plants had received a temporary set-back which affected their health and rendered them susceptible to attack by the fungus.

In this country the disease cannot be regarded as of serious importance. Should it ever assume an economic importance it would be necessary to remove and burn the spotted leaves and to spray the trees with a fungicide, preferably Bordeaux Mixture. Care must be taken to prevent seedlings in the nursery from being badly affected, so as to avoid transplanting weakened plants.

ii. *Meliola Palmarum* is a "sooty mould" fungus which sometimes occurs on the leaves of the plant. The fungus is of the same nature as those which are responsible for the "sooty mould" of mango and of citrus fruits. The upper and under surfaces of the leaves become covered with an intensely black coating which is composed of a dense growth of the mycelium of the fungus. The fungus is easily removed and does not appear to penetrate the leaf, but it prevents the leaf from performing it proper functions. The growth of the fungus appears to depend on the presence of scale insects.

Resin wash appears to be the best remedy for "sooty moulds." It is prepared from resin 8 lb, sal soda 4 lb, water 2 pints. The mixture is boiled and water is added to make up to 5 gallons. Before using, the solution is diluted 1 in 7 or 1 in 8 with water.

The spraying of coconut trees up to a height of 20 or 25 feet could be performed by means of a "Cascade" sprayer; where a greater height is required the spraying machine would have to be drawn to the top of the tree by a rope and pulley and used there. For this purpose an automatic sprayer must be used, as it would not be possible for a coolie to use a pump. An "Invicta" automatic sprayer has been obtained and appears likely to give satisfactory results. It is both light and easy to handle.

iii. Four trees were affected by a disease which exhibited somewhat similar symptoms in each case. in the town of Kuala Lumpur. One tree was growing in scrub near the roadside and the other three in a grove near to the road. Attention was called to the first tree from the fact that the leaves were dead or dying and hung down from the crown. A sour smelling liquid was being exuded at parts of the stem and ran down the trunk. The tree did not show a rotting of the terminal bud. The tree was cut down and it was found that the tissues of the stem were diseased. Internally the stem showed the presence of brown patches or a brown ring occurring under the hard outer layer of ground-tissue near to the surface. The roots for the most part presented an unhealthy appearance. The stump and trunk of the tree were removed, but there was no time available for an examination of the tissues to be conducted.

Subsequent to this three adjacent trees were observed in another part of the same district to show similar symptoms of disease. Externally, on two of the trees, there was a bleeding from the stem at more than one point. The leaves were yellowing or had drooped and hung down, some of them breaking across; the nuts were being shed without reaching maturity. The third tree showed similar symptoms, but there was no bleeding from the stem. The "cabbages" of the two first-mentioned trees were involved in a rot. Brown patches occurred on parts of the leaves constituting the buds while areas at the base of the bud were decayed and the whole "cabbage" could be removed by pulling it away from the crown. In the third tree the bud was not involved in a rot. The stems of all three trees showed a brown discoloration usually taking the form of a ring near to the surface. In the two former trees the rot had spread from the crown for a foot or eighteen inches down the trunk, the ground-tissue surrounding the fibres having been disintegrated, particularly near the centre of the stem. The roots of the trees were for the most part unhealthy; the outer layer having become in several of the roots shrunken and dark-coloured.

Microscopical studies showed that the tissues of the stem did not contain organisms unless they were badly affected. Hyphae of fungi were found in badly affected parts along with numerous bacteria, especially in parts which were under the bleeding patches. From the stem, by using parts which were situated some little distance internally and employing as far as possible sterile conditions, a fungus was isolated which was identified as a species of *Thielaviopsis*. I have since found this on several occasions on dead parts of stems of the coconut and it appears to be a saprophyte. The roots showed the *Diplodia* fungus, the presence of which was presumably secondary as it comes on readily on dead parts. Several

attempts were made to obtain the fungus which is the cause of the "bud-rot" of the palms in India from the diseased petioles of the young leaves, but all of these failed. No attempt was made to isolate bacteria from the affected parts of the crown.

The question remains as to what was the cause of death of the trees. The present position with respect to coconut crown diseases of this nature is as follows:—(1) A "bud-rot" which occurs on palms in India and sometimes affects the coconut. This is caused by a fungus, *Pythium palmivorum*, Butler. (2) A "bud-rot" of the coconut palm in the West Indies, Cuba, Jamaica, Trindad, &c. attributed by Johnson to *Bacillus coli* or strains of this bacillus, a bacillus occurring in the human intestine. (3). A root disease of the palm attributed by Stockdale to the *Diplodia* fungus, the same as that causing the "die-back" disease of Para Rubber, and by Rorer to a physiological trouble resulting from unfavourable soil conditions. The former considered that the bud of a coconut tree affected by any disease or pest in the advanced stages of the disease invariably became involved in a rot. The latter regards the root disease and bud-rot as being distinct from each other, but sometimes occurring together on one tree.

The diseased trees presented the symptoms of the root-disease (3); but it is also interesting to note the rotting of the bud in two of the four trees. To what extent a bud-rot of the palm occurs in this country requires to be determined, and also whether or not it is identical either with the bud rot in the West Indies or that in India.

Some trees have been observed at Pekan (Pahang) to show similar symptoms of disease.

Diseases of Other Crops.

Diseases of several other crops were investigated during the year. These along with the treatment which was recommended will now be given:—*Tomato* (*Lycopersicum esculentum*). Tomato plants cultivated at Maxwell Hill, Taiping, and at Kuala Lumpur are not infrequently affected by the bacterial disease caused by *Bacillus Solanacearum*. In one residential part of Kuala Lumpur the disease appears to be so common as to render the growing of tomato plants successfully almost impossible. The wilting of the plants and the presence of a brown colour in the stem at the position of the vascular bundles are the recognised symptoms of the disease. An account of the disease and its treatment need not be detailed here as they are given in the Agricultural Bulletin of the F.M.S. and S.S.Vol. IX No. 12, 1910.

ii. A "mildew," caused by a fungus *Erysiphe Polygoni*, was observed on Maxwell Hill. The treatment recommended was to dust the plants periodically with flowers of sulphur or to spray them

with Liver of Sulphur, and to expose them to the Sun as much as was conveniently possible.

Potato, (*Solanum tuberosum*) The bacterial disease of the tomato plant was also found to affect potato plants at Maxwell Hill. The treatment is the same, except for the additional facts that it is profitable to lift the crop early where the disease occurs so that some of the tubers may be saved and that infected tubers must never be used as "seed."

Beet and Spinach. A spotting of the leaves of these plants caused by the fungus *Cercospora beticola* was found to occur on Maxwell Hill. Spraying the leaves and soil with ammoniacal carbonate of copper was recommended for its treatment.

Tea (*Thea sinensis*). The "copper blight" caused by the fungus, *Laestadia Theae*, has been recorded on tea plants growing in private gardens.

Ground Nut (*Arachis hypogea*). The only disease recorded on the imported varieties of ground nut from Ceylon was a leaf-spotting due to the fungus *Cercospora personata.*

Mango (*Mangifera* indica.) A disease of fruits of mango was commonly observed during the year. It is caused by a fungus, (*Gloeosporium Mangiferae*). The fruits develop black spots which increase in size and run together, the whole surface being sometimes affected. Under the spots the pulp is soft.

Rice. (*Oryza sativa*). A "smut" due to the fungus *Ustilago virens* has been recorded in Perak and is being investigated by Mr. Bateson. The disease appears to be present in India and in Japan.

Taban (*Palaquium oblongifolium*). A leaf disease among seedlings of this plant which were growing in the Government Nurseries at Trolak was investigated and considered to be due to a new species of fungus, named *Laestadia Palaquii*. Bordeaux Mixture was recommended for trial as a spray.

HOW TO DISTINGUISH DIFFERENT ORDERS OF INSECTS IN THEIR VARIOUS STAGES.

ORTHOPTERA.

By C. B. Holman-Hunt.

(*Continued*).

The Orthoptera have been conveniently divided into four families :—

Running Orthoptera (or Blattidæ)	Shape oval, flat. Legs all about equal in size. Example. Cockroach.

Grasping Orthoptera. (or Mantidæ)	Shape long, rather slender. First pair of legs fitted for grasping and nipping. Example. Praying Mantis.
Walking Orthoptera. (or Phasmidæ)	Shape long, slender, sometimes flat. Legs all long and slender, about equal in size. Tarsi 5-jointed. Examples. Stick Insect, Leaf Insect.
Jumping Orthoptera.	Shape stout. Hind legs stouter and longer than the first or second pairs and fitted for jumping.
Divided into	
Short-horned Grasshoppers. (or Acrididæ).	Antennæ shorter than body; ovipositor of female consists of 4 plates. Tarsi 3-jointed. Includes Locusts proper. Example. Locust: Short-horned Grasshoppers.
Long-horned Grasshoppers. (or Locustidæ).	Antennæ slender, longer than body, ovipositor of female sword-shaped and long. Tarsi 4-jointed. Examples. Long-horned Grasshopper, Katydid. *Not* Locust.
Crickets. (or Gryllidæ)	Antennæ slender, usually longer than body. Ovipositor of female spear shaped. Tarsi 3-jointed. Examples. Crickets, Mole Crickets.

The cockroaches lay their eggs in clusters enclosed in a sort of oblong pod, which can but too often be found in almirahs and book shelves.

The young hatch out without wings and grow rapidly when they can get enough to eat, which is usually the case as they are almost omnivorous. Many forms of cockroaches never grow wings but always progress by running.

Cockroaches are not important pests as a rule except in the house and then insect powder and Napthaline will usually keep them away. A method of killing them which I have never tried but is said to be successful is a saucer of dry flour and plaster of Paris in equal parts. This they are said to eat with avidity and then their first drink makes the plaster set hard in their gullets.

The Mantids lay eggs also in masses, but they are enclosed rather in a frothy structure which rapidly hardens into a somewhat globular mass, arranged in layers, as may be seen when a section of it is cut.

The young hatch out after a time and let themselves down by a silken thread, till they reach a leaf or other suitable hunting ground, here they immediately start chasing slow insects or lying in wait for fast ones, catching them in their powerful nipping fore-legs. As they grow older and bigger they catch larger prey, till in the adult winged stage they are capable of taking and eating a cock-chafer or other large beetle. They differ but little as larvæ from the adult stage, except that they are wingless. The Mantids are useful as destroyers of insect pests but they make no distinction and kill off their parasites as well. The females are often cannibalistic, eating their mates, while the males are very pugnacious and the one that gets its neck or body into the nut-cracker grip of the other rarely escapes.

The Stick Insects, lay their eggs singly, each egg in a capsule shaped like a short stalked seed. These are scattered about apparently at random over ground likely to produce food for the young, which feed on leaves of grass, bamboo or coconut. When the young emerge from the egg, they are short and dumpy, but grow in a few minutes, so that it is difficult to understand where the body and long legs were packed away.

Many of the Stick Insects do not possess wings and then the earlier stages differ from the later ones merely in size. The time of coming to maturity may take from 6 weeks to 16 months.

Leaf Insects lay similar egg capsules, each containing a single egg. The young are curious flat insects, usually markedly curled, often reddish in colour, closely resembling a dying leaf; as they grow older they become green and finally develop leaf-like wings, often marked with spots and blotches making the resemblance to an old leaf more marked.

They feed in all stages on leaves, especially of softer plants, and are not often found on grasses or bamboos. The legs are often flattened out and indented to resemble the bitten edge or natural border of a leaf. The male generally differs markedly from the female, is less leaf-like and both pairs of wings are adapted to flight.

The Phasmidæ include perhaps the longest insects in existence, as the body of one that is common in India and Malaya exceeds 8 inches in length and is 3/8 inch in diameter.

The Jumping Orthoptera include many serious insect pests, amongst them the locust, the cricket and mole cricket are perhaps the worst, but the long horned grasshoppers often grow to a huge size and would do great damage, if they appeared in any numbers.

The locusts, which may be any short-horned grasshoppers that go about in swarms, are very prolific. The female is provided with two pairs of hard, terminal, divergently hooked plates which are used to excavate holes for her eggs. These are laid in masses of 80 to 120 at a time in the midst of a whitish froth, which rapidly

hardens and acts as a protection from ants and other enemies. The holes are usually one to two inches deep and the same patch of land is usually chosen as a common breeding ground for the swarm.

The young hatch out with large heads, tapering bodies, two pairs of walking and one of hopping legs and without a trace of wings. They grow rapidly, eating up as much as they can and then migrate in large numbers to a fresh feeding ground. They appear to dislike jarring noises and can therefore be driven by gangs of coolies with tomtoms, kerosine oil tins or guns away from their feeding ground and into trenches or long sacks or on to some sacking covered with a sticky mixture. These are all good modes of reducing their numbers in the hopping state.

Being gregarious they may quite possibly be liable to some epidemic diseases, the germs of which might be spread on their food plants; but most attempts at this method of extermination have failed. It is probable that the climate of the Malay States with its heavy rains would not be suitable to their constitution, but they have appeared in some numbers in one state and are breeding, so they want watching. The hoppers of the particular locust referred to are black in the first stage, then black with tawny yellow below and a tawny yellow narrow line on the vertex of the thorax and when adult are putty-coloured with black irregular streaks on the upper wings and on the legs and a black broad longitudinal stripe on each side of the thorax above.

The insect is when full-grown about 2½ inches in length from the front of the head to the tip of the wings.

The Locusts in captivity here, have just (September 23rd) laid some batches of eggs, a description of which may be interesting.

The eggs are sausage-shaped, about a quarter of an inch long and one twentieth of an inch thick, dark amber-coloured, embedded cross wise on a pinkish brown spongy case about one and a half inches long and rather more than a quarter of an inch thick. This case is either concealed in a hole in the ground with the top of the case flush with the surface or attached by some sticky substance to the wire mesh in front of the cage. In the open it is therefore possible that some of the egg-masses may be attached to leaves or stumps, I hope to report the date of their hatching in a future number of the Bulletin.

The long horned grasshoppers lay their eggs either in the ground or inside twigs or stems of plants and occasionally on the leaves themselves; the eggs are flattish oval and generally laid close together and the young bears as close a resemblance to the adults as do those of the short-horned grasshopper.

In America many of the long-horned grasshoppers are known as Katydids.

The males are provided with rough patches on their wings and legs with which they produce a shrill chirp.

The Crickets lay their eggs also in the ground or in the stems of plants and the young closely resemble small wingless adults. They have a way of nipping off young seedlings; this may often be prevented by surrounding the plant with a collar or ring of paper.

The mole cricket is essentially a burrowing insect and feeds on the roots of plants, its thick sturdy triple-pointed forelegs enable it to penetrate any soft ground. The female lays 200 to 400 eggs and watches carefully over them in a special cell hollowed out in the burrow. The male however is cannibalistic and eats any young ones that he can catch.

I hope in my next article to deal with the White ants and Dragonflies.

REVISED ESTIMATE FOR OPENING UP COCONUT LAND.

By L. C. Brown.

Owing to several changes that have taken place in the different condition of labour since my Pamphlet No. 11 on Coconut Cultivation in the Federated Malay States was published, I would now submit a Revised Estimate for the guidance of those who may care to interest themselves in the cultivation.

I received the original Estimate from Mr. Munro, Permatang Estate, Banting, an excellent authority on cocount cultivation and I am again indebted to him for further assistance in compiling the Revised Estimate, as prices of labour have been obtained from him as well as other Planters of experience in Kuala Langat and Lower Perak and these figures I have worked out on a general average. I am aware that where Chinese Labour is employed the expenses of weeding and cultivation are heavier, and some allowance may have to be made for this; but, generally speaking, the advantages and disadvantages by which there may be a saving or otherwise on labour in the various districts about counterbalance themselves, and therefore on the total expenditure there should not be much difference in cost.

I consider therefore as a whole the Estimate submitted below may be taken as a reliable one, perhaps rather on the liberal side, and easily capable of being worked upon if the management is carried out on sound and economical lines by any experienced Manager. At the same time I have not taken into account any unusual expenditure or what may be considered as an extravagant or unnecessary expense.

As regards returns I have raised the price of copra to $8.50 per pikul (under the average rate that has been realized during the past three years), which figure I am of opinion in view of future prospects may be taken as a conservative one. On the other hand I have allowed as much as 240 nuts to the pikul up to the 7th year, that is to say while the trees are in partial bearing. My reason for so doing is that during this period the nuts are often found to be smaller and contain less meat than at a later stage. However, from the 8th year onwards I have retained the same rate as in my previous Estimate, viz: 220 nuts to the pikul, as I believe this return can then be reasonably anticipated.

The expenditure on the Estate up to the 6th year works out a little under $190 per acre, and after this period the Estate may be considered self-supporting. Of course over a larger area, say from 1000 to 3000 acres, the average cost will be materially less. Allowing therefore for any little difference of expense in the various districts it should not cost more than $200 per acre in any locality to bring a Coconut Plantation into a remunerative condition.

ESTIMATE FOR OPENING UP AND BRINGING INTO BEARING 500 ACRES.

	1st Year.
Felling and Clearing at $20 per acre	$ 10,000
Draining at $16 per acre	8,000
Cost of seed (35,000) seeds at 8 cents each	2,800
Fencing at $4 per acre	2,000
Lining and Planting at $3 per acre	1,500
Coolie Lines	1,500
Tools	300
Bungalow	1,500
Stationery and Postage	100
Medical	1,500
Premium at $3 per acre	1,500
Quit-rent at $1	500
Survey fees	500
Weeding, 1st 6 months at $1½ per acre per month	4,500
Contingencies	1,000
Superintendence	3,600
Total	$40,800

2nd Year.	
Quit-rent	$ 500
Weeding, tilling and forking	6,000
Supplying	325
Draining	375
Medical and Contingencies	2,000
Superintendence and Visiting Agent	4,800
Total	$14,000
3rd Year.	
Quit-rent	$ 500
Weeding, tilling and forking	6,000
Draining	375
Superintendence	4,800
Medical and Contingencies	2,000
Total	$13,675
4th Year.	
Quit-rent	$ 500
Weeding, tilling and forking	3,600
Draining	375
Medical and Contingencies	2,000
Superintendence	4,800
Total	$11,275
5th Year.	
Quit-rent	$ 500
Weeding	3,000
Draining	375
Medical and Contingencies	2,000
Superintendence	4,800
Total	$10,675
6th Year.	
Quit rent	$ 1,000
Weeding	3,000
Draining	375
Picking, Curing and transport	2,400
Medical and Contingencies	2,000
Superintendence	4,800
Total	$13,575

7th Year $14,800. 8th Year $19,400. 9th Year $19,400.

RETURNS.

6th year 10 nuts per tree = 1000 pikuls of copra at $8.50 (240 nuts to pikul).	$ 8,500
7th year 30 nuts per tree = 3000 pikuls of copra at $8.50 (240 nuts to pikul).	$25,500
8th year 50 nuts per tree = 5650 pikuls of copra at $8.50 (220 nuts to pikul).	$48,025
9th year 50 nuts per tree = 5650 pikuls of copra at $8.50 (220 nuts to pikul).	$48,025

MINUTES OF MEETINGS OF THE PLANTERS' ASSOCIATION OF MALAYA, HELD AT THE CHAMBER OF COMMERCE, KUALA LUMPUR ON AUGUST 25TH 1912 AT 10.30 a.m.

PRESENT:

Mr. E. Macfadyen (in the chair).
Mr. H. C. E. Zacharias (Secretary), Mr. W. G. Dobson (Legal Adviser) and the following Delegates:

Mr. J. G. Cruickshank	from Kapar, D.P.A.
„ E. H. King	„ „ „
„ T. T. Beaty-Powell	„ Bagan Datoh Coco Pl. Ass.
„ F. G. Harvey	„ Kuala Lumpur, D.P.A.
„ A. J. Fox	„ „ „
„ G. W. Templer	„ Negri Sembilan, P.A.
„ P. W. N. Farquharson	„ „ „
„ A. Dupuis Brown	„ „ „
„ W. de L. Brooke	„ Ulu Selangor, D.P.A.
„ M. J. Kennaway	„ „ „
„ J. A. Craib	„ Klang, D.P.A.
„ R. W. Greenhill	„ „ „
„ C. A. Buxton	„ „ „

Mr. G. A. Bennett	from Batu Tiga, D.P.A.
,, T. J. Cumming	,, ,, ,,
,, H. E. G. Solbe	,, ,, ,,
Hon. H. M. Darby	,, Malacca, P.A.
Mr. R. W. Fox-Male	,, ,, ,,
,, G. H. Gutteridge	,, ,, ,,
,, R. W. Munro	,, Kuala Langat, D.P.A.
,, F. J. Dupuis	,, ,, ,,
,, C. Burn Murdoch	,, Kajang, D.P.A.
,, W. Towgood	,, Kuala Selangor, D.P.A.

also the following Visitors :

Messrs. J. C. Nimmo, G. C. Ash, L. Moojaart, J. H. H. Mansfield and the Protector of Labour (Mr. J. R. O. Aldworth).

1. The Minutes of the Meeting held on 19th May are confirmed.

2. The Secretary explains that there had been no quorum at the meeting held on June 30th and that therefore the next business before the meeting was to consider the validation of those proceedings.

Mr. Cruickshank considers this a bad precedent to establish and opposes it therefore as a matter of principle.

Mr. Macfadyen states that the circumstances had been exceptional and that the only business that would have to be done over again, if these Minutes were not validated now, was the election of Honorary Members. He reminded the meeting that the expedient now suggested was no new thing but had been resorted to before. He would therefore propose that the Minutes of the Meeting held on June 30th be confirmed and thereby validated.

This motion is seconded by Mr. Dupuis Brown and carried with three dissentients.

3. *Age Limit of Recruiters.*

The Secretary reads the following letter :

Penang, 15th August, 1912.

Sir,

In continuation of my letter No. 3 in 802/12 of the 12th June last on the subject of the minimum age of Kangannies. I have the honour to inform you that your letter was laid before the Immigration Committee at their last meeting on August 4th current.

2. I am instructed to say that the Committee do not consider it advisable to alter the present rule and I am to draw your attention to the wording of this rule (No. 7 of the Rules under the Tamil Immigration Fund Enactment published in the Government Gazette of 7/7/11) which leaves some discretion in the matter to the Superintendent of Immigrants viz : a license will not be granted to any person who appears to be under the age of 21 years.

I have, &c.,

(Sgd.) E. F. GILMANN.

4. *The New York Exposition.*

The Secretary reads the following letters:

New York City,
12th July, 1912.

H. E C. Zacharias, Esq.,
Sec. The Planters' Ass. of Malaya,
Kuala Lumpur, F.M.S.

Dear Sir,

I thank you for your letter of the 4th June addressed to London and sent on to me here. I will, with pleasure, give Mr. Baxendale every attention. The Exhibition will be a very fine one; Brazil evidently got a fright over the plantation countries exhibiting in New York; they are sending over twelve delegates and their exhibit will be a mammoth one; they have over 7,000 square feet of space.

I am, &c.,
(Sgd.) A. STAINES MANDERS,
Organising Manager.

London, E. C.
1st August, 1912.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur, F.M.S.

Dear Sir,

Malay Peninsula Exhibit.
Third International Rubber Exposition, 1912.

Further to my last letter on this subject, in which I sent you copy of the circular issued from this office appealing to Companies possessing estates in the F.M.S. to send contributions towards the cost of the Malay Exhibit at the New York Exposition, I beg to inform you that this appeal has yielded, to date, the sum of £80-5-0. Would you kindly advise me in due course to whom this money should be handed.

With compliments.

I am, &c.,
(Sgd.) C. TAYLOR,
Secretary.

Mr. Macfadyen remarks that although personally he had been against participation, now that the step had been decided upon by them and been supported in so generous and sporting a manner by the Government he considered it very poor for the planting companies to leave the Government to bear alone the burden of it; and he hoped that the Managers in the East would write to their Directors and get them to reconsider the attitude.

5. *Education on Estates.*

The Secretary informs the meeting that he had addressed the Protector of Labour in the terms of the Resolution passed at the last meeting. He had now heard from the Protector of Labour that a day had been fixed for their Sub-Committee to meet him and the Director of Education, and it was now for this meeting to select, say, three of their members to act as such Sub-Committee.

Mr. Craib proposes, Mr. Fox seconds, and it is resolved unanimously that the Sub-Committee consist of Messrs. Macfadyen, Cruickshank and Harvey.

6. *Rules for Sanitation.*

The Secretary lays on the table "Rules for Sanitation," as received from the R. G. A. and reads the following letter:

1, Oxford Court, Cannon Street,
London, E. C.
12th July, 1912.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur, F.M S.

Dear Sir,

Rules for Estate Sanitation. I append herewith a copy of Rules for Estate Sanitation prepared by Mr. Malcolm Watson, and approved by the Principal Medical Officer and by the Council of this Association. A further supply is sent to you under separate cover. It is proposed to issue these to all Companies here requesting that they send a supply out to their Managers and Agents, with a view to the rules being observed in such cases where these precautions are not already taken.

Before taking this action, however, the Council of this Association would be gratified if they were able to state that the rules were approved by the Planters' Association of Malaya as well as by the P.M.O. of the Federated Malay States and by this Association.

May I ask, therefore, that you will kindly bring these rules before the members of the Planters' Association with a view to their passing a resolution of approval.

Pending receipt of a communication from you on this subject, the rules will not be circulated.

Yours faithfully
(Sgd). C. TAYLOR,
Secretary.

Mr. Harvey proposes, Mr. Templer seconds, and it is agreed to unanimously to approve of these Rules in the terms of the letter received from the Secretary of the R. G. A.

7. *Repression of Drunkenness*:

The Secretary reads the following letter:

Kuala Lumpur,

The Hon: 15th July, 1912

The Colonial Secretary,
Singapore.

Sir,

I have the honour to forward to you a Memorandum on the question of Drunkenness amongst Tamils, which memorandum was originally submitted by this Association to the Government of the Federated Malay States; and also copy of the Government reply thereto.

I am now directed to submit to you the great desirability of your Government taking analogous steps in the Agricultural Districts of the Colony.

I have, &c.,
(Sgd). H. C. A. ZACHARIAS,
Secretary.

Colonial Secretary's Office,
Misc. 4265/1912. Singapore, 18th July, 1912.

Sir,

I am directed to acknowledge the receipt of your letter of the 15th instant the contents of which are receiving attention.

I have, &c.,
(Sgd). E. B. MAUNDELLY,
for Acg. Colonial Secretary,
Straits Settlements.

The Secretary,
The Planters' Association of Malaya,
Kuala Lumpur.

Mr. Munro draws attention to the fact that the Enactment provides for Inspectors of liquor shops and suggests that actual inspection should be more stringent.

Mr. Macfadyen agrees and feels sure that the more bringing into force of the new regulation would not prevent the Tamil Coolie from obtaining gin. He would suggest however that further representations had better be deferred until, say, a month after October 1st.

8. *Agricultural Bulletin.*

The Secretary reads the following correspondence:—

Kuala Lumpur, 15th July, 1912.

The Director of Agriculture,
Kuala Lumpur.

Sir,

I have been instructed to thank you on behalf of the Standing Committee for your offer to get out Minutes printed free of cost, which offer we have great pleasure in accepting. I understand the procedure in future will be for me to supply you with the Minutes, of which you will get 100 copies printed *in extenso*, whilst a

summary of them will be prepared by you for publication in the Journal.

I have, &c.,
(Sgd). H. C. E. ZACHARIAS,
Secretary,
P.A.M.

Kuala Lumpur.
16th July, 1912.

No. (23) in 86/1912.

Sir,

In reply to your letter of the 15th, the arrangement regarding the minutes of the Planters' Association of Malaya suggested by you is I think the best one and permission has been given for the Government Printing Office to print your minutes in extenso.

I have, &c.,
(Sgd). L. LEWTON-BRAIN,
Director.

The Secretary,
The Planters' Association of Malaya,
Kuala Lumpur.

9. *Packing of Rubber.*

The Secretary reports having circulated the following circular received from the R. G. A.

8, Billiter Square,
E. C.
28th May, 1912.

Copy.

C. Taylor, Esq.,
Secretary,
Rubber Growers' Association,
1 Oxford Court, E. C.

Packing of Rubber.

Dear Sir,

With reference to my letter of the 28th March last, upon the above subject, I beg to hand you herewith a copy of letter addressed to his Company by the Commander of the P. & O. s.s. "Sumatra" to which I would call particular attention.

Yours faithfully,
(Sgd). J. MOTLEMAN,
Secretary, Homeward Japan, China and Straits Conference.

Copy of Letter above Referred to :

"I beg to draw your attention to the condition in which the Rubber shipments have been received in Port Swettenham and the packing of this valuable cargo, as out of a shipment of over 1700

cases at least 100 were either in a damaged condition or damaged by handling, the latter not due to carelessness but owing to the frail nature of the cases. In the majority of cases the rubber is packed in a cheap brittle wood case, the ends being dovetailed, with a narrow iron band at the extreme edge. When a sling of even six cases is landed on the hatches the mere fact of landing them starts the dovetailing, and forces the ends open, and owing to the springey nature of the contents, and the brittleness of the wood, it is impossible to repair them in a proper manner (unless the contents are put in cases, which was done with the three worst this time) the consequence being that the contents are left more or less exposed and liable to pillage. We keep all the rubber we can in the lockup but shipments are now so large that a certain amount is in the holds and if damaged and exposed it leaves a great risk of pillage. Will you respectfully allow me to suggest that it should be put to the shippers to put, say, three bands round their cases one way, and two across, as it is done by some shippers in Colombo or to pack them in Venesta cases like the Highlands and Lowlands Estate, for it is surely to the shippers interest to have their cargo landed in good order."

10. *Currency Notes.*

The Secretary reads the following letter:

Ipoh 17th July, 1912.

The Secretary,
Planters' Association of Malaya,
Kuala Lumpur.

Dear Sir,

I beg to hand you copy of a letter I have directed to write to the Currency Commissioners, Singapore, and I am directed to ask you to write to them on the same subject, if you are in sympathy with my Committee.

Yours faithfully,
(Sgd). HENRY T. BINGHAM,
Hon. Sec. Perak Chamber of Commerce.
Ipoh 17th July, 1912.

The Chairman,
Currency Commissioners,
Singapore.

Sir,

I have the honour to inform you that I am directed by the Committee of this Chamber to write and urge upon the Currency Commissioners the desirability of calling in all worn and insanitary notes now in circulation.

These old notes are most insanitary, and it would be expedient to withdraw them from circulation for that reason.

I have &c.,

(Sgd). HENRY T. BINGHAM,

Hon. Sec. Perak Chamber of Commerce.

Resolved to support the Perak Chamber of Commerce accordingly.

11. *Honorary Members.*

Mr. Macfadyen proposes, Mr. Brooke seconds and it is carried unanimously that the following gentlemen be elected Honorary Members, viz: Messrs. Thos. H. Hill, C. Meikle, and John Gibson.

12. *Native Names of Estates.*

Mr. Harvey proposes that all estates employing Tamil coolies be given a Tamil name, and that these names be registered with the P. A. M., and a list published. The advantage was obvious and the practice worked very well in Ceylon. At present coolies absconded and one was told they were working "at the fifth mile," which was altogether too vague a description.

Mr. Bennett seconds the proposition and remarks that this provision would cut the other way too and would give would-be employers a chance to ascertain more definitely which estate intending labourers came from.

Mr. Macfadyen suggests that it might be advisable to choose Chinese names as well for estates employing a Chinese labour force.

Mr. Gutteridge emphasizes the necessity of avoiding duplication of names.

Mr. Munro is afraid that whatever names the estate may choose the Tamil population would go on calling it by the old name.

Mr. Harvey amends his motion as follows: That a list of Tamil and Chinese names of estates be compiled by the P. A. M. and published.

Mr. Bennett accepts the amendment and the proposition is carried unanimously.

13. *Railway Ambulance Coach.*

The Secretary reads the following letter:

Kuala Lumpur, 10th July, 1912.

Secretary, P.A.M., Kuala Lumpur.

Dear Sir,

At the last meeting of the Committee of the Benevolent Fund held on the 6th instant., I was directed to draw your attention to the desirability of a Railway Ambulance Coach, and to recommend the Association approach the authorities accordingly.

Believe me, &c.,

(Sgd). H. C. E. ZACHARIAS,

Secretary, Benevolent Fund, P.A.M.

Mr. Harvey proposes that the Railway authorities be approached accordingly.

Mr. Craib seconds this.

Mr. Dupuis Brown suggests that the recommendation be for " coaches," not for a " coach."

The proposition is agreed to unanimously.

14. *Indigo.*

The Chairman briefly refers to a lecture held by Baron Schrottky and regrets the absence of Mr. L. Lewton-Brain, who would have been able to give them further information on the subject.

15. *Indian Immigration Committee.*

The Secretary reads the following letter :

Federated Malay States,

No. 281/1912. Kuala Lumpur, 15th August, 1912.

Sir,

I have the honour to forward for the information of your Association two extracts from the minutes of a meeting of the Immigration Committee which was held at Kuala Lumpur on the 4th August current.

I have, &c,

(Sgd.) J. R. O. ALDWORTH,

The Secretary, Protector of Labour, F.M.S.

Planters' Association of Malaya,

Kuala Lumpur.

Extracts from the minutes of a meeting of the Immigration Committee held at Kuala Lumpur on the 4th August, 1912.

In order to reduce the amount of the outstandings it was resolved in future to impose interest on all amounts remaining unpaid for one month after they became due in accordance with the powers conferred by Section 6 of the Enactment.

Decided that attention should be called, in the original assessment notice sent to employers, to the liability to interest after 21 days ; and that when the first remainders are sent out the interest due shall be calculated and added to the amount payable.

The attention of the Committee has been called to recent cases in which persons not of the labouring classes and with no intention of working as labourers have been brought over from India with free tickets at the expense of the Fund.

Free passages and recruiting allowances are granted on account of bona fide labourers and their families only, the bringing over free of other persons is a misuse of the Funds for the disbursement of which the Committee are responsible and they desire to place on record their strong disapproval of the practice and trust that employers of labour generally will co-operate with them in putting a stop to it.

16. *Labour Code.*

The Secretary lays on Table further correspondence with Government passed on the subject as follows :—

Kuala Lumpur, 5th July, 1912.

The Chief Secretary,
F. M. S.
Kuala Lumpur.

Sir,

Reverting to the memorandum on the Draft Labour Code submitted by me on the 11th ult., I have the honour to inform you that I have been instructed to submit three additions ; recommended by the Malacca Planters' Association, viz :

(1) It should be made compulsory that an abstract of all sections directly affecting the cooly in relation to the employer and vice versa, should be printed in the vernacular and posted up in each cooly line.

(2) With reference to the India Immigration Fund the assessment levied for the second year and onwards on a cooly, so long as he continues to work for the employer who recruited him, should be levied at a nominal rate only.

(3) Section 108 between the words " district " and " shall " insert the words :—

' after having given the management in charge 48 hours notice in writing.'

I have, &c.,
(Sgd.) H. C. E. ZACHARIAS,
Secretary, P.A.M.

Kuala Lumpur,
Federated Malay States,
4th July, 1912.

No. 4996/1912.

Sir,

With reference to your letter of the 11th June, last, I am directed to forward the enclosed reply to the Memorandum of Comments of the Committee of the Planters' Association of Malaya on the Draft Labour Code.

I have, &c,,
(Sgd.) J. F. OWEN,
Ag. Under Secretary, F.M.S.

The Secretary,
The Planters' Association of Malaya,
Kuala Lumpur.

REPLY TO THE MEMORANDUM OF COMMENTS &c. OF THE COMMITTEE OF THE PLANTERS' ASSOCIATION OF MALAYA.

Arrangement.

1. The Bill has already received protracted expert consideration and it is considered questionable whether the inclusions of all interpretations in Clause 4 would be simpler or more lucid or avoid all confusion. Interpretations aim merely at shortening language and when as in this Bill terms are used in special chapters with special meanings it appears rather convenient to have these special meanings set out in the special chapters where they apply.

2. It is in the opinion of the Government desirable that this Bill should be passed with as little delay as possible and it is therefore proposed that in matters of form the Draftman's work should be interfered with as little as possible.

3. An interpretation of " Medical Officer " appears to be desirable and an endeavour will be made to supply a practicable definition.

4. It is true that the definition of labourer in Clause 4 does not specify Kanganies nor Tindals, &c., but the law has been altered in this respect. When however the Bill is considered in Committee it is proposed that the definition under Clause 4 and also under clause 189 shall be amended.

5. The definitions suggested are as follows:—In Clause 4 " Every Asiatic miner, artificer, servant in husbandry and every other Asiatic employed for the purpose of personally performing any manual labour or of recruiting or supervising Asiatics for or in the performance of such labour but, ...".

6. In Clause 189 (incorrectly quoted as 182 in the Committee's memorandum) " any person who performs " will, it is proposed, be altered to " *Any Asiatic* who performs."

7. The schedule mentioned in Section 128 (1) is not included because it could not be prepared until the law was settled. It is proposed to amend this clause so that it shall read as follows :—

" An abstract of Chinese Labour Law shall as soon as conveniently may be after the passing of this Enactment be prepared and published in the Gazette and every employer who employs... .....a translation thereof in Chinese."

8. The observations of the Committee regarding Section 235 and Chapter XXIV are noted. The necessary re-arrangement will be made.

Statute Immigrants.

9. The Government does not agree with the opinion of the Committee of the Planters' Association of Malaya as to allowing the necessary Clauses of the old enactments relating to Statute Immigrants to remain in force *pro tem* and prefers to have them embodied

in this code. It is better to the view of the Government to look forward to alterations in this Enactment after indentured labour has been discontinued.

10. With regard to Clause 66 the marginal note makes it clear that the provisions of this clause are restricted to engagements made locally but there appears to be no reason for omitting the words "otherwise than under a con'ract made with him as a contract labourer."

The words should have been marked with an S.

11. It is not admitted that the provisions of Clause 100 are not applicable to free labour and the Government is not therefore prepared to agree to their being deleted. Consequently Clause 103 should also remain.

General Provisions.

12. Clause 28.The Government does not consider it expedient to transfer the power given to the Protector under this Clause to the Controller of Labour. There appears to be no reason why the Protector should not make himself acquainted with the general principles involved and it is considered that he is in a better position than the Controller of Labour to fix what is a reasonable sum for a free passage from China and for advances made in China.

13. The Government has given careful consideration to the question of the date of payment of wages and is of opinion that it is not unreasonable that payment should be made on the 7th day as proposed in the Bill.

In deference however to the representations of the Committee the Government is willing to fix the 10th day but it must be understood that this provision will be enforced strictly.

It is proposed however to add at the end of Clause 69 the following words: "when notice has been given the labourer shall be paid all wages due to him on the day of expiration of the notice."

14. The Government agrees to fixing the stamp duty on agreement at 10 cents instead of 50 cents.

15. Clause 81 reproduces the existing law but there appears to be no objection to making it clear that the transfer is made by the employer and with his consent.

16. With regard to Clause 96 it is to be observed that the age of an adult labourer is fixed in Section 152 at 14 years and upwards merely because labourers under 14 years are carried half price on contract steamers. The Government is not prepared to assent to any modification of age in Clause 96 or 225 (i).

17. Clause 233 (i) (a). It is proposed to abandon Clauses 231 to 234 as printed and to revert to the existing law. A copy of the Sections which will be inserted in Committee is forwarded herewith. It is not considered desirable to authorise employers to impose fines.

The question raised as to the number of days which a labourer might be required to work will not come under consideration.

The Government would not have been prepared to assent to the suggestion that it should be 24 days but would have had no objection to it being increased to 20 days which is the number required of Statute Immigrants.

18. The Government could not have agreed to increasing the penalty prescribed under Clause 233 as printed on the right in the draft. This Clause gave authority to an employer to impose fines for various delinquencies without trial before a court and it would have been undesirable to allow the imposition in this manner of heavy fines such as those suggested by the Committee.

On consideration it has been thought better not to give employers the power to fine but to require them to proceed in the ordinary manner in a Magistrate's Court.

Immigration.

19. Clauses 26 (1) & 50 (ii)

The Government is unable to assent to the Committee's recommendation that the employers' liability under these clauses should be limited to 30 days, but it is proposed to make provision by which a Creditor can, on payment of all expenses, have the debtor sent back if fit to travel.

20. In Clauses 31, 32, 33 and 52 there would appear to be no reason why "place" should not be substituted for "port" and this will be done.

21. There does not appear to be sufficient reason why other States under the British Suzerainty should be included in Clauses 31, 32, 33 and 163 (ii) (b).

It must be remembered that the Controller will be responsible for the administration of the Code in the F.M.S. and Colony only.

22. Clause 50 (ii). The Government does not propose to charge a fee for the examination of immigrants and has no objection to the omission of the words suggested by the Committee.

23. Clause 158. It is not considered necessary to make any alteration in this clause. Whatever arrangement has been made on behalf of the Government will be adhered to and it is unnecessary to give effect to that arrangement by amending the Clause.

24. Clause 40 and 152. The criticism of the Committee on the terms "British India" and "Madras Presidency" is noted. The Government does not at present consider it necessary to make any amendment.

25. Clause 163. The Government has no objection to the proposed addition of the words "(e)

For the payment of recruiting allowances."

Certificated Immigrants.

26. The Government is advised that in view of Clause 44 the amendment suggested by the Committee in Clause 40 is not necessary.

27. Clause 41 (a) should be deleted as suggested.

28. Locally Recruited Labour Clause 66.

The suggestions based on Ceylon Ordinance No. 9 of 1909 raise an important question of principle and will require careful consideration. The Government has no information before it as to how the system works in Ceylon but will make enquiries on the subject.

The limited time now available before the present bill comes before the Council makes it impossible to include the suggested new Clause in the bill. The matter will however receive careful consideration.

29. The alternative suggested by the Committee has been considered and the Government has no objection to providing for a registration fee. The work of compiling the proposed abstracts and register will involve very considerable clerical labour and if the registration fee is paid to the Fund it is considered that the cost of preparing them should be defrayed from the fund.

Place of Employment.

30. The Government is not prepared to adopt the proposed amendment in Clause 40 which, it is considered, might operate very harshly.

Truck System.

31. The provisions of the Truck Enactment were passed on instructions from the Secretary of State and it is not possible to amend its provisions in the manner suggested without reference to him.

The question raised by the Committee will however have careful consideration. Clause 101 has been inserted by mistake and must be deleted. It was taken from the Labour Enactment 1904 and was repealed by the Truck Enactment.

Rural Boards.

32. The Government is not prepared to agree to the proposed delegation of certain power to Rural Boards or analogous Committees. One of the principal objects which the Government has in view is more uniformity of practice and procedure. It is suggested however that there might be Advisory Committees in various districts who could be consulted by the Government Officers entrusted with the Administration of the Labour Laws but it would not appear to be necessary or desirable that these Committees should be constituted by law.

Place unfit for Labourers.

33. The Government regrets that it is unable to agree with the suggestion of the Committee that Section 220 should be deleted and that the powers conferred by Section 221 and 223 should be vested

in a Committee consisting of a Judicial Commissioner, the controller and an unofficial Member of the Federal Council with power to take evidence on oath.

34. There is in the opinion of the Government amp'e justification for the retention of 220. It is not entirely a new provision for it is taken substantially from the Indian Immigration Enactment and was insisted upon by the Government of India in respect of Statute Immigrants. Circumstances have arisen which render it, in the opinion of the Government necessary to make the law in this respect more comprehensive.

It is considered advisable to make certain amendmen's in Clauses 220 and 221 and these are shewn in the annexed copy of the two Clauses. (See amended copy of Section enclosed).

35. The Government is prepared to insert an amendment providing that no order under Clause 223 shall be made until the employer shall have had an opportunity of showing cause against such an order being made and of calling any evidence that he may desire.

Penalties.

36. Clauses 54 and 55. The Government has no objection to adopting the suggestion of the Committee as to the disposal of the fines under these Clauses.

Frivolous Complaints.

37. The suggested penalty of $10 seems to the Government excessive. It is proposed that it shall be $2.50.

38. Clause 122 (i). There does not appear to be any necessity to provide a penalty under this Clause which deals with powers of arrest.

39. Clause 227. The Government is willing to raise the penalty to $100. It should be remembered that the penalty may be imposed in respect of each labourer.

40. The Government appreciates the trouble which the Standing Committee of the Planters' Association of Malaya have taken in connection with the Labour Code and while it has not been able to accept all the suggestions which have been made it fully recognises the value of the criticisms which have been offered.

41. It is admitted that some of the provisions of the Code are of a very drastic nature and in this connection the Association should bear in mind that the labour question in this coun'ry is one of great complexity, the vast number of labourers being drawn from foreign countries under different Governments each of which considers it necessary (and very rightly so) to insist on provision being made in the laws of this country for affording full protection to the labourers drawn from its particular jurisdiction.

It is imperative that the fullest powers should be given to the Government to deal with any contingency that may arise.

(Sgd). E. L. BROCKMAN,
Chief Secretary, F. M. S.

Kuala Lumpur,
4th July, 1912.

No. 2 in 4996/1912.

Kuala Lumpur,
6th July, 1912.

Subject.
Draft Labour Code.
Additions recommended by the Malacca Planters' Association.

Sir,

I have the honour to acknowledge the receipt of your letter of the 5th July, 1912, the contents of which are receiving attention.

I have, &c.
(Sgd). T. P. COE,
for Ag. Under Secretary, F.M.S.

To the Secretary,
The Planters' Association of Malaya,
Kuala Lumpur.

The Chief Secretary,
F M.S.
Kuala Lumpur.

Kuala Lumpur,
20th July, 1912.

LABOUR CODE.

Sir,

I have the honour to acknowledge the receipt of your reply dated the 4th instant., to our memorandum on this subject, and am instructed to thank you for giving it so careful and sympathetic a consideration.

My Committee are particularly gratified at the result of their representations on 66 (locally recruited labour) and they await with interest the result of the enquiries now set afoot.

From the tenor of your remarks on the provision of 140 (Truck System), we hope to gather that our suggestions have been forwarded to the Secretary of State having the support of your recommendation.

The waiving of a fee in 50, 2; the reduction of the stamp duty from 50c. to 10c. (76, 3); the insertion of $2.50 in 119 and of $100 in 227 are other concessions for which I am to express the thanks of my Committee.

On the other hand, my Committee regret that you do not see your way to delete 100 and 103 and they still think that the Age Limit should be reduced to 14 years in 96, even if that is not done in 225.

My Committee can also not agree with you on the desirability of retaining the provisions relating to Statute Immigrants, as they feel it to be of very great importance that the Code which should be in the hands of every employer be as a lucid and simple as possible and not unnecessarily burdened with provisions, which will only tend to confuse the average layman, without furthering the interests of anybody. For the same reason my Committee consider it advisable that all definitions should be contained in one section.

In addition however to the above, which by comparison will appear as minor points, there are two of first magnitude, on which my Committee regret to say they are at complete variance with the views expressed by you.

1. *Rural Boards.* The creation of Advisory Boards who could or could not be consulted by the Government Officers in question would hardly seem to advance the matter, as we presume that without further legal machinery the Protector of Labour or a Health Officer has already the right to consult Planters, if he so wishes it.

The wish for "more uniformity of practice and procedure" is not one that recommends itself, as long as the physical and other conditions of the various planting districts differ so widely as they do; and it is not understood, why such centralization is deemed necessary in respect of Rural Districts, whilst Urban Sanitary Boards are allowed to carry on a separate and independent existence.

My Committee therefore trust that you will reconsider your decision and countenance the creation of Rural Boards, even if only as an experiment, as my Committee feel certain that, once working, their great advantage will very clearly vindicate their introduction.

2. *Places unfit for Labourers.*

My Committee regret to find themselves in disagreement with you on the necessity of retaining 220 ff.

The amendments mentioned in your letter were not enclosed, as stated, and it is therefore not possible for us to discuss these proposals; but my Committee beg to submit respectfully, that the sections, as drafted, cannot be accepted by the Planting Community as final.

I have, &c,
(Sgd). H. C. ZACHARIAS,
Secretary, P.A.M.
Kuala Lumpur,
Federated Malay States,
30th July, 1912.

No. 2 in Part of 4996/1912.

Sir,

I am directed by the Chief Secretary to acknowledge the receipt of your letter dated the 20th July which was handed to him at Kuala Kangsar by Mr. E. B. Skinner. Your letter was laid be-

fore the High Commissioner who regrets that he has not been able to comply with all the wishes of the Planters' Association of Malaya in regard to the Labour Code.

The Code has now been passed and it is hoped that it may prove less open to objection in practice than the Committee fears it may be.

2. The High Commissioner has not yet communicated with the Secretary of State on the Subject of the Truck System. Before he can do so it is necessary that he should have fuller information regarding this question to enable him to judge whether he can advise the Secretary of State that an amendment of the Truck Enactment is desirable.

Any information the Planters' Association of Malaya can give on the subject will have his Excellency's careful consideration.

I have, &c.,

(Sgd). J. F. OWEN,

Ag: Under Secretary, F. M. S.

Mr. Macfadyen reviewing their negotiations with the Government on this Bill, says that in certain matters, the Government had made actual concessions. They might as well take those first as they wanted to make the most of them. The Government had agreed that pay-day should be on the tenth instead of the seventh day, and they had also withdrawn the provision charging a fee for the medical examination of immigrants on arrival at the port. The draft of the Code had included very limited powers granted to employers to fine coolies for certain specified offences. These powers had now been eliminated, but he did not know they were very great losers. In the matter of discharge tickets the recommendations of of some the members who had had experience of the law in Ceylon had not so far been met with a blank refusal. The Government had met the suggestions with an open mind, and had asked for time to consider them and make enquiries. If the Association could convince the Government that the liberty of the coolies would not be seriously interfered with there was a possibility that some system of discharge tickets would before long be made law.

Referring to the "truck" question though they were not by any means certain of getting their point conceded, they had not so far received a flat refusal.

That was all they had gained, except that Government said they appreciated the trouble the Association had taken, and fully recognised the value of the criticisms which had been offered. (Laughter.) That was very nice, but there was an old adage about the insufficiency of fine words by themselves to butter parsnips. (Laughter.)

There were other matters more disappointing. The first was what was colloquially spoken of the Perhentian Tinggi Enactment.

That was a law which was passed in the course of a very few days' consideration, and at the time the Association protested, not so much against the law as against the precipitancy with which it was passed. In answer to the resolution adopted by the Association to that effect the Government replied that they fully agreed that in the ordinary way it was not desirable to pass a measure of vital importance at such short notice, and it was explained in Council that the law was made for one particular case only, and would not be used in any other case. That in his idea however only made the procedure worse. They were assured that before these powers could be put into exercise a second time the whole question would be reconsidered, and the Planters' Association would be given ample opportunity for expressing its views. Personally he took it that the Government had found themselves in a hole and had got out of their difficulty by methods they recognised and admitted were crude and which they were prepared to modify when they had been given time to consider how much modifications could be introduced.

So far from being modified however, this law had now been included in the Labour Code, and along with it other provisions which were much more sweeping. In the first temporary enactment, passed at the end of the last year, power was taken by the Government to enter upon any estate on learning that condition of the coolies as regarded health or otherwise was unsatisfactory. The Government could, if necessary, remove the entire labour force. They could come in at any given moment and say, "This estate may no longer be used for the employment of Tamil coolies." One would have thought that sufficiently sweeping. But the Government had dragged out from an old Straits Settlements Ordinance provisions relating to indentured Tamil labour, an entirely different thing from free labour. It had now been made the law that not only might the Government come in and say an estate had been proved to be unfit for Tamil coolies, but having sold them a block of land, they might at the very beginning of things, refuse to allow them to employ Tamil coolies to turn the block into an estate.

The Association recognised and admitted that in this country, in the exceptional circumstances here, it was quite necessary that the Government should have extreme powers to deal with imported labour. But they did say that if these powers rested in the Government they must be exercised subject to some reference to some authority other than the executive officers of Government. (Hear hear.) The proposal which they made, just to put the thing in concrete shape, was that the law and its allied provisions should not be used except after reference to a small commission or committee which should include a judge. The Government said that that was an improper use to which to put a judge, but he noticed

that one of them did not consider it beneath his dignity to sit on a commission on rikisha rioters in Kuala Lumpur. (Laughter.) He believed the law when printed would be found to contain an amendment that an employer proceeded against should have an opportunity of showing cause against such an order being made, and to call any evidence he might desire. They were assured that the Chairman of the Local District Planters' Association, for instance, would be called in, and that the Manager in that way would be allowed to bring pressure upon the Government.

He regretted to say that for his own part he did not value these verbal assurances. They committed the man who made them, and who doubtless stood by them quite honourably, but he was here to day and in Fiji or East Africa to-morrow, and that verbal assurance committed nobody but himself. That amendment did not appear to him to be of the slightest importance. They must continue to press for modifications which would secure them against the whole business of their estates being at one stroke of the pen, and without any warning, suspended.

The Government were quite right to protect labour, but in a country like this, where the Government claimed omniscience as well as omnipotence, it was well to advise them, that capital also was entitled to protection. Both employers and coolies came there freely, independently, and with the hope of gain, and knowing full well where they were coming to ; protecting the coolie could be overdone to the point of mollycoddling him. Where would that country be at the present moment if these clauses had been in force 15 or 20 years ago? One thing he would say was quite certain : they would have had no railway. (Hear hear.)

He now comes to the administration of the health enactment incorporated in the Code. No one had been keener than the planters on any measure to improve the health of the cooolies, and he did not think any department could have started under more favourable conditions than the Health Department of this country, two years ago. And now, he supposed of the numerous peripatetic Inspectors who visited their estates, no one was less welcome than the Health Inspector. (Laughter.) And he did not hesitate to say that all the lavish expenditure which had been incurred under the instructions of the Health Officers during the past two years had failed to make the country one little bit more healthy than before. He was not arguing against medical science, but against the position in which their Health Officers were put, and which was an untenable one. The medical man was an expert. The expert might be a good man to advise on his own particular hobby, but very often he was the very worst man to advise on general policy. (Hear hear). He devoted so much time to one particular aspect of things that he lost his sense of proportion. In no other country

in the world was the medical officer put in the position in which he was there. In England he was adviser to a board or committee, which in turn was controlled by the Local Government Board. That was the kind of system the Association asked the Government to adopt. They asked that rural boards should be created, including planter members, but with an official majority in every case. But the Government simply flouted the whole thing. The Chief Secretary wrote that one of the chief objects of the Labour Code was to introduce uniformity in administration. What reason there could be for uniformity in hospitals or latrines between Kuala Lumpur and Klang, Malacca and Johore, Ipoh and the Dindings, it passed his wit to conceive. He should have said one of the great advantages secured by the rural boards would be that they would secure an intelligent diversity. The Government insisted on maintaining the indefensible and hopeless position by which the same man who, as medical officer, reported on an estate, advised the Resident as to what instructions were to be given to that estate, while if the planter appealed he could only do so to the Resident, whose adviser was the same person who originally gave the order. That was an impossible position. He belived the Government had missed a great opportunity when they refused to consider the proposals of the Association.

It now remained the clear duty of the Association to press for an alteration of the law on the points touched upon by him, and to continue doing so by every means in their power, in this country as well as in England, until they had gained their points.

Mr. Darby would like to know the feeling of the Association in regard to the Indian Imm. Com. Cess. which was still levied on the number of coolies on an estate, instead of on those recruited. He felt that the rebates did not adequately certify matters and hoped that the committee would reconsider the incidence of the cess.

17. *General.*

Mr. Harvey would express on behalf of the Association the great pleasure they had all felt at seeing Mr. Macfadyen's appointment to the Federal Council as their representative and he would now tender to him their heartiest congratulations on so well deserved an honour.

Mr. Macfadyen gratefully acknowledges the kind words and only regrets that he sat not as their representative on the Council, but merely as a Government nominee and he hoped the time would soon come when unofficial members would hold their seats in virtue of an appointment by the interests they were called upon to represent.

Mr. Munro draws attention to the appointment of the Hon. H. M. Darby as member of the Legislative Council of the Colony.

Mr. Darby suitably acknowledges the compliment and trusts that he will do as good work there as Mr. Macfadyen will do on the Federal Council.

Mr. Craib asks whether any news had been received regarding the new mail contract with the B. I. S. N. Co., Ltd.

Mr. Macfadyen replies that no official information had as yet been received. He would like to add however that in a private conversation he had had with the Chief Secretary the latter had expressed the view that there was no connection between this mail contract and the Indian Immigration Fund.

With a vote of thanks to the Chair, the Meeting terminates at 12.30 P.M.

(Sgd). H. C. E. ZACHARIAS,
Secretary.

A NOTE ON THE HOSTS WHICH AFFORD A STARTING POINT FOR THE COMMON ROOT DISEASE OF PARA RUBBER.

BY KEITH BANCROFT.

The question of applying a selective method of stumping, by which is meant the removal of certain stumps which are likely to harbour the fungus, was discussed in the Bulletin No. 13 of the Department of Agriculture. A list of hosts was given which botanically covered a very wide range of the Plant Kingdom embracing bamboos and certain palms as well as trees of the nature of meranti and merabau. Taking this fact into account with the number of hosts on which the fungus has been recorded it was considered inadvisable to recommend selective stumping as a preventive for the root disease.

In the August number of the *Tropical Agriculturist* in a criticism of the above Bulletin by Petch the list of hosts on which *Fomes semitostus* has been recorded in Ceylon is given as jak (*Artocarpus integrifolia*), the red cotton tree (*Bombax malabaricum*), *Ficus spp.* and *Derris dalbergiodes*, a considerably smaller number and not covering such a wide range of the flowering plants as those on which the fungus has been recorded in Malaya. The suggestion is raised by Petch that since the fungus has not been recorded in Ceylon on palms and bamboos, which belong to a different division (*Monocotyledons*) of the Plant Kingdom to our large timber trees, to coffee, *Hevea*, &c., it is possible that some of the records obtained in Malaya may not refer to fructifications of *Fomes semitostus* but to those of another fungus, *Polyporus zonalis*.

There is little difficulty in distinguishing fructifications of these two fungi in the field when they are fresh, the most easily distinguishing character being the colouring of the "brackets," especially the under surface which in *Fomes semitostus* is of a bright orange. This colouring is always employed in demonstrating to planters the difference in the fructifications of different "bracket forms." But all of the records of plants which were quoted in the Bulletin as affording starting points for the root disease were made personally by the author.

The absence of record of *Fomes semitostus* on *Monocotyledons* in Ceylon is interesting since in lowlying lands of Malaya our commonest hosts of the fungus are stumps of nibong and serdang, both palms. Recently, too, the fungus has been recorded on dead stumps and trunks of the coconut palm on one estate. The area on which this latter record was made was originally a native kampong which was converted into a coffee plantation; then coconuts were planted with the coffee, and later the coffee was cut down and *Hevea* was planted. The coconuts were then cut off near to the surface of the ground and the trunks were buried in long trenches to a depth of a few feet. The *Hevea* trees are being tapped. Some of the trees adjacent to the trenches were attacked by the root disease and the mycelium could be traced spreading from the stems of the coconuts in the trenches along the lateral roots of the *Hevea* trees, having in some cases reached their tap roots, while adjacent stumps of coconut trees shewed the fructifications and mycelium of the fungus. This recent record is interesting in that, it not only adds another to the list of plants which may afford a starting point for the root disease, but also shews the danger which arises from cutting down an intercrop with *Hevea* without completely removing it. The question arises as to how the coconut stumps and stems became infected. The root fungus has not been recorded on living roots of the coconut palm and the land is free from jungle stumps. It seems not unlikely, therefore, either that the coffee acted as a carrier of the disease or that the coconut stumps became infected through the spores of the fungus. On the other hand, the root fungus may possibly attack living roots of the coconut palm; the absence of record hitherto may only be due to lack of opportunity, since no careful study of root diseases of the coconut has been carried out in this country.

Perhaps the most interesting host is the tapioca plant. The tapioca plant possesses tuberous roots, while *Fomes semitostus* is admittedly most usually a wood-destroyer.

The fungus grows readily on roots of tapioca and consequently there is sometimes a considerable loss of *Hevea* trees which are interplanted with tapioca. Where jungle land is opened up by contract with a Chinaman, tapioca and *Hevea* being planted and

the Chinaman allowed to take two crops of tapioca off the land before it is handed over, the loss from the root disease among the *Hevea* is magnified, because the two crops of tapioca may not be obtained until the end of three years. During this period a large number of *Hevea* trees may have become infected, the treatment of the disease is suspended until the land is handed over, and it is no longer possible to locate and treat isolated centres of infection.

To sum up the hosts of *Fomes semitostus* in Malaya, the fungus has been recorded on members of the two main groups of the Flowering Plants, the *Monocotyledons* and *Dicotyledons*, and on widely separated representatives of each group. It has also been recorded on hard woods and soft woods, on red woods and white woods, although on hard red wood it is not common. And finally, it has been recorded on a plant possessing tuberous roots. There is scarcely therefore a likelihood of selective stumping being practicable as a preventive treatment for the root disease in this country.

NOTE.

In consequence of an oversight the pages in No. 2 of the Agricultural Bulletin were not numbered consecutively with those of No. 1.

Subscribers who wish to bind up the numbers at the end of the volume are requested to alter the numbers of pages 1 to 57 in No. 2 to 43 to 99.

On page 3 of No. 2, line 19, 37,000 should read 57,000.

NOTES ON THE SINGAPORE MARKET FOR STRAITS PRODUCE DURING SEPTEMBER, 1912.

Produce business generally has been dull throughout the month though prices as a rule have been well maintained

Peppers. Singapore Black has kept fairly steady at $20.5/8 to $20¾, the tendency having been towards lower prices. There is not so much pressure now to sell Lampong however, and with some slight improvement in demand an improvement seems likely during October. Sarawak White Pepper is still arriving in fair quantities, and has found a good market at $34 to $35. The quality of recent arrivals shows a slight improvement, though the average as compared with previous crops leaves much to be desired. A few small parcels of Muntok have been sold at $36 to $37.

Gambier. Demand has been exceedingly dull, and the price has gradually declined to $9 at which buyers seem to be taking a little more interest in the article. Supplies are now arriving in average quantities and production appears to be on about the same scale as last year.

Copra. Has been a strong market with a good demand especially for near delivery, and prices of all grades have advanced very considerably, although there has been a slight set back during the past few days. We quote the principal grades current here as follows :—

Good S. D. $11.50. Bally $11.40. Kayong $11.10. Pulo $11. Siantan $11.

Rubber. Values have kept fairly steady during the month although the general tendency has been downward and towards the end of the month prices dropped quite sharply. Quantities offered at the local Auctions are steadily increasing and the sales are becoming more important.

Closing values are as follows, viz :—

Pale Crepe	$241	per picul.
No. 2 „	$224	„
Smoked Sheet	$241	„
Unsmoked	$238	„
Scrap	$175 to $196	„

Tapioca. Has been dull and uninteresting and prices have sagged away. Supplies are still very small with little prospect of much if any increase in the near future. Closing values are Fair Small Flake $8.75 and Fair Medium Pearl $8.50 per picul.

Nutmegs. Very little business has been done during the period under review. Prices have kept very steady at round about $30 and $28 per picul for 80s. and 110s. respectively.

Sago Flour. Has declined considerably and closes weak with Sellers at $3.95 to $4 according to grade. Supplies are full and a large business is reported.

FEDERATED MALAY STATES.

Comparative Statement of Cultivated Rubber Exported during the Years 1912 and 1911.

Produced in	Exported during Aug. 1912.	Previously.	Total export during the year.	Export during similar period of previous year.	Increase.
	lbs.	lbs.	lbs.	lbs.	lbs.
Perak	1,035,119	5,431,435	6,466,554	3,272,489	3,194,065
Selangor	2,050,058	9,410,329	11,460,387	6,139,488	5,320,899
Negri Sembilan	564,551	3,176,728	3,741,279	2,156,377	1,584,902
Pahang	5,807	59,634	65,441	14,881	50,560
Total ...	3,655,535	18,078,126	21,733,661	11,583,235	10,150,426

Exported viâ	To United Kingdom.		To Continent of Europe.		To Ceylon.		To America.		Total.	
	Aug.	To date.	Aug.	To date.	Aug.	To date.	Aug.	To date.	Aug.	To date
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Port Swettenham	2,074,767	10,992,779	207,340	1,493,855	85,340	579,091	819	23,413	2,368,266	13,089,138

Note:— To Australia and Japan Nil.

KUALA LUMPUR,
10th September, 1912.

W. F. TALBOT,
Acting Commissioner of Trade and Customs, F.M.S.